Intensive care

Intensive Care:

Een korte geschiedenis maar een grote toekomst

REDE

In het Nederlands uitgesproken bij de aanvaarding
van het ambt van bijzonder hoogleraar
met de leeropdracht intensive care
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door

Graham Ramsay

Contents

Mijnheer de Rector Magnificus,
Leden van de Universitaire Gemeenschap,
Geachte collegae,
Dames en heren,

I stand before you today as the first professor of intensive care appointed by the University of Maastricht. Indeed, I believe that I am the first professor of intensive care in The Netherlands. Of course, this is reason for me to feel very proud but it also serves to underline the accuracy of the title of my oration today - the history of intensive care is indeed a short one.

1. How intensive care started

Intensive care usually dates its origin from the polio epidemics of the 1950s, when hospitals had to cope with large numbers of patients presenting with ventilatory failure. The epidemic that afflicted Copenhagen was described by the epidemiologist Professor Lassen[1] in an article still worth reading, not least because of its lack of jargon and complex statistics. Those polio victims who developed respiratory failure were initially managed using "iron lung" ventilators in different areas of the hospital. Within a few weeks, about 100 patients had been received. The mortality rate of 90%, combined with the lack of adequate numbers of these ventilators, suggested the need for a new approach, and so advice was sought from the anaesthetist Professor Björn Ibsen. He showed, using the relatively new technique of arterial blood gas analysis, that the patients were dying from hypoxaemic ventilatory failure. He performed a

tracheostomy on a 12-year-old girl, using a cuffed tracheal tube: the girl survived.

After this three important changes were introduced: - patient care was centralised within the hospital; airway control was provided via surgically formed tracheostomies; and the patients' lungs were ventilated with oxygen-enriched air using manual positive pressure provided by teams of medical students. This resulted in a reduction in the mortality rate to 40%. Lassen noted the psychological benefits of having a dedicated attendant permanently by the bedside, but also pointed out that this was more expensive. He also showed that, although the new system of management produced many more survivors, it delayed death among patients destined not to survive. The old (cuirass) method allowed more patients to die faster, and therefore at lower cost. I will return to the question of cost effectiveness and technology assessment at a later stage in this text but will first continue describing the history of intensive care taking the city of Glasgow, where my own intensive care training took place, and the city of Maastricht as two examples.

The start of intensive care in Glasgow

The first intensive care in the city of Glasgow was opened in the Western Infirmary in 1968 by a surgeon, Professor Iain Ledingham. The initial intensive care team comprised three individuals - Ledingham, Dr. James Kerr, a pulmonologist and Dr. J. Mone, an anaesthetist. From the beginning the Western Infirmary played a leading role in guiding the development of intensive care in Glasgow. When my own surgical career started in Glasgow in 1981 four of the cities, five university hospitals had intensive cares but the Western Infirmary continued to play a central role. This was partly because of the consistently large scientific output from the department but also due to the

establishment of a mobile intensive care unit in 1974. Iain Ledingham was again the person responsible for establishing this mobile service, known locally as the "shock team". The unusual geography of the West Coast of Scotland contributed to the importance of the shock team which provided an intensive care service to many communities in the highlands and islands which lacked intensive care facilities. Over the years the team developed a huge experience in the transport of patients and published extensively on the subject.

My intensive care training began in 1984 when I joined the shock team as a research registrar. At that time the team was composed of three junior doctors, two of which were on call at any one time. When a request was received for the transfer of a patient both registrars would drive in a especially converted ambulance to pick up the patient. After stabilizing the patient one of the doctors was responsible for the care of the patient in the ambulance while the second doctor drove the ambulance back to the central intensive care in the Western Infirmary. In later years, partly because of the first reductions in doctors' working hours, and partly for reasons of safety, the doctors were no longer allowed to drive the ambulance themselves and the local ambulance service provided a professional driver.

The start of intensive care in Maastricht

The first intensive care department in Maastricht was opened in St. Annadal Hospital, on department D1, on the 4th of April 1972. The start of the department could easily have been on the 1st of April had that not happened to be Easter weekend. I am grateful to Roger Loyens, now head nurse of the centre for home ventilation but then working as head nurse for the new intensive care, for providing me with the very first on call rooster for the new intensive care. When the intensive care opened on the Tuesday

after Easter, "broeder Loyens" was supported by only 15 intensive care nurses for the 24 hours staffing of eight intensive care beds. This makes an interesting comparison with the staffing levels of today with 66 full time equivalents for 16 beds. The medical team running the intensive care department comprised Dr. F.J.M. Timmermans, anaesthetist, Dr. Witkop, pulmonologist, Dr. P. Pop, internist and Dr. Lemmens, surgeon. In 1976 the surgical input passed on to Peter Soeters, who continues to participate actively in intensive care to this day. Here we can see a clear similarity between the intensive cares in the Western Infirmary Glasgow and in Maastricht since, in both, the people responsible for the establishment of the units had the vision to set up their departments as multi-disciplinary units, not only admitting patients from all specialities but with doctors from various specialties participating in the medical team.

The move from St. Annadal to the new University Hospital

In a letter dated the 27th of February 1970 the government made it known that Maastricht would be the site of the eighth medical faculty. On the 3rd of December 1975 a new law 'Rijksuniversiteit Limburg' came in to force and in the same year an agreement was signed between the state and the 'St. Annadal' Hospital. The first article in this agreement stated that - at the moment that the university hospital begins to function as such the foundation 'Stichting St. Annadal' would be disbanded and the 'St. Annadal' Hospital closed. The expectation was that the interim period between the signing of the agreement and the opening of the new hospital would be a short one. In practice the situation was quite different. The new building was delayed and the translation of the philosophy for the new medical faculty into goals and plans for the new university hospital cost much more time than had been planned. This text is not a suitable place to discuss the reasons for

all the delays but ten years later in 1985 the only signs of the new university hospital were a series of concrete foundation blocks designed to stop the new university hospital sinking into the underlying morras. The intensive care unit eventually moved from D1 in 'St Annadal' to two new departments E3 and D3 in the university hospital in 1991. Personally, I have good reason to be grateful that bureaucracy delayed the process and allowed some changes to the plans since this first professorship in intensive care for Maastricht is supported by 'Stichting Annadal' which according to the original plans would have long since ceased to exist. I should add that I have had no chance (or inclination) to check these facts which I found in a text in the annual report 1985 of 'St. Annadal' Hospital.

The new intensive care departments were adequate for 18 beds although initially only 10 beds were open. The facilities were modern, there was good visibility to the outside world and excellent amounts of daylight leading to a very attractive working environment, which has been maintained to this day. Also maintained to this day is the multi-disciplinary medical input. None of the 'intensivists' working in the intensive care of the university hospital Maastricht are full-time. All of the staff still work in a mother speciality - either anaesthesia, internal medicine or surgery. The knowledge and individual expertise that comes from these three separate backgrounds can be exchanged in a fruitful way. In addition, other members of the three departments, not directly participating in intensive care, feel more involved through having one of their colleagues as a member of the intensive care team. Lines of communication are thus kept short. Within this structure it is necessary to have several individuals from the team spending a significant proportion of their time on intensive care, allowing them to be responsible for the management of the department. Other models for the structure of

intensive care exist and the optimum way to organize a department can be debated. However, many intensivists believe that multi-disciplinary access to the speciality is of crucial importance. This is certainly one of the major goals of the European Society of Intensive Care Medicine (ESICM). Individuals from Maastricht have also played an important role in trying to ensure multi-disciplinary access to intensive care at a European level.

2. Structure of training and accreditation in intensive care in Europe

The multi-disciplinary input into intensive care as established in both Maastricht and the Western Infirmary Glasgow was unfortunately not typical for the development of intensive care in general. Anaesthesia and respiratory medicine have generally been the disciplines most closely linked to intensive care practice. While these disciplines have contributed very substantially to intensive care practice and research, the association has not facilitated access to intensive care for other specialties. Perhaps in consequence, this has tended to produce a fragmented sub-speciality approach to the challenges faced by this high - technology, high cost activity. Spain is the only country in Europe which recognizes intensive care as a separate primary speciality. In all other countries certification in intensive care is only available to doctors who have completed a primary speciality, such as anaesthesia, internal medicine or surgery.

The sad fact that access to intensive care training is not universally available to doctors from all specialities was highlighted as recently as 1998, in a survey by the ESICM[2]. This survey took place in Europe and for the purposes of comparison

the Middle East, North America and Australia and New Zealand were included. Formal training programmes in intensive care medicine were availabe in 18 of the 21 countries or regions surveyed. 12 (75%) offer multi-disciplinary access to intensive care training with a common core curriculum. In six (28%) training in intensive care medicine is available solely to anaesthesia. Indeed in one European country a decision was recently made to offer intensive care accreditation to all trainees who completed a speciality training in anaesthesia - in other words in that country all the anaesthetist are automatically anaesthetist-intensivist irrespective of the level of interest the graduate may have in the practice of intensive care medicine.

The duration of intensive care training required for recognition as a specialist in the 18 countries or regions with a formal training programme ranges from 18 to 30 months with a median of 24 months. All countries assess competence in intensive care, but methods for doing so vary widely. 18 countries or regions offers specialist registration (accreditation in intensive care medicine; in 12 this is provided as dual accreditation in a base speciality and in intensive care medicine.

This survey serves to illustrate how much work has to be done to harmonize medical training in Europe. It is a sobering thought to consider that although I stand here as a professor of intensive care I would be unable to obtain accreditation as an intensivist in Italy, Turkey, Slovenia, Tsjechoslovakia, Sweden, Norway, Finland or Denmark - simply because my background speciality is surgery. In all of these countries intensive care training is only accessible to anaesthetists.

3. Speciality, sub-speciality or supra-speciality

There have been extensive discussions about whether intensive care should become a separate speciality. Many full-time practitioners of intensive care felt in the past that it should. However, in recent years most intensive care clinicians have come to favour a collaborative, multi-disciplinary approach to training and practice allowing practitioners of intensive care to remain active in their base speciality. Within Europe only in Spain is intensive care a separate speciality. Most Spanish intensivists would like to change this situation to come in line with the rest of Europe but this requires a change in law at governmental level.

In France there are two pathways for training in intensive care medicine . One is via internal medicine; this is a two year multi-disciplinary programme available to trainees from a variety of base specialities (i.e. a 'supra-speciality'). The other is via anaesthesia (a 'sub-speciality') lasts 1.5 years, and is available only to anaesthetic trainees.

In Germany there are ten base specialities which can offer their own intensive care teaching. In each case the training period is two years, part of which is taken within the base speciality training time. A common trunk has been developed by a multi-disciplinary group, the Deutsche Interdisziplinare Vereinigung für Intensiv-und Notfallmedizin (DIVI), with representation from each participating speciality, so although the structure is one of multiple sub-specialities, in practice the system reproduces the 'supra-speciality' format, with adaptations to accommodate trainees from different backgrounds.

In the USA, ICM follows a true multiple sub-speciality format, differing from Germany in that there is no nationally agreed common core curriculum, despite the efforts of members of the Society of Critical Care Medicine to establish a multi-disciplinary

approach. Intensive care training programmes are available through anaesthesia, internal medicine, surgery, and paediatrics, with certification of trainees through the parent discipline Speciality Boards, and accreditation of the training programmes by the Accreditation Council of Graduate Medical Education, to which the various Residency Review Committees report.

In The Netherlands the structure is remarkably similar to the situation in Germany. The 'Gemeenschappelijke Intensivisten Commissie' (GIC) has the same structure as the German DIVI. The GIC was established with representatives from the societies of anaesthesia, internal medicine and surgery. Retrospective accreditation of intensive care practitioners was carried out. Regulations for antigrade accreditation were layed down. Potential training centres were visited and accredited for the training of fellows. Maastricht is currently one of six accredited training centres for intensive care. Applications from other centres are currently been considered. Until now more than 50 fellows have followed an antegrade IC training. Half of all fellows were from anesthesia, closely followed by internal medicine, with 3 surgeons and I pulmonologist. Representation in the GIC has been extended to include the societies of neurology, neurosurgery, pulmonology and cardiology. All participating specialities have agreed on a core curriculum and a standard length of further training to achieve the accreditation as an intensivist. In The Netherlands we have good reason to be pleased with the multi-disciplinary character of intensive care training. One area of disappointment is that intensive care in The Netherlands is not represented by a single scientific society but by two separate societies (indeed until recently three societies). In addition to leading to confusion and fragmentation this means that the national representation of intensive care has to occur through the parent societies such as anaesthesia, internal medicine and

surgery. Unfortunately this sometimes results in non-uniform advice being given at ministerial level.

4. Representation of intensive care at European level

Within the European community the organisation responsible for laying down regulations on medical training and accreditation is ACMT (Advisory Committee on Medical Training). ACMT has representation from the ministries of health of all member states. ACMT receives advice from a separate organisation - UEMS (Union of European Medical Specialists). UEMS comprises medical specialists elected from various sections, each section representing a primary speciality as defined in the regulations from ACMT. Since intensive care is a primary speciality in only one European country there was no section for intensive care and therefore no representation within UEMS or recognition within ACMT. There was a significant risk that intensive care would be dealt with by many separate sections independent of each other. The danger was that this would lead to different training structures and accreditation requirements depending on the background of the practitioners wishing to practice intensive care.

Professor Simon de Lange, chairman of the anaesthetic department in Maastricht, lobbied hard within the general secretariat of UEMS to allow establishment of a new multi-disciplinary group to represent intensive care.There was initially resistance within his own section of anaesthesia. However, after lengthy the discussions and much political rankling the general secretariat of UEMS eventually approved the establishment of the new Multi-disciplinary Joint Committee on Intensive Care Medicine (MJCICM). MJCICM is currently chaired by Prof. S. de Lange and includes representatives from all interested sections,

currently including anaesthesia, internal medicine, surgery, pulmonology and paediatrics. In addition, the group includes three members of ESICM - namely Graham Ramsay, Jean Carlet and Hilmar Burchardi by design these representatives from the European Society come from different background specialities - surgery, internal medicine and anaesthesia respectively.
The current task of the MJCICM is to establish guidelines for accreditation in intensive care, organise visitations and thus define standards for intensive care departments and most importantly to harmonize intensive care training across Europe. One of the major aims of MJCICM, unanimously supported by members of the group, is to protect (or were necessary promote) multi-disciplinary access to intensive care and thus to avoid intensive care being relegated to sub-speciality status with access only available through one speciality.

5. The future

In an extreme vision of the future acute hospitals would consist almost entirely of, on the one hand, day care and short stay facilities and, on the other hand, high or intensive care facilities. The number of routine clinical beds required in the future will be dramatically less than is now the case. This vision may sound extreme but one has only to consider the changes in practice which we have seen in the last 20 years. A cholecystectomy no longer requires a stay of seven to ten days in a surgical ward, this is now a day case procedure. It is to be expected that this trend will be continued with more and more patients being treated in a rapid turn round system in day care or short stay facilities. From an efficiency point of view this is clearly a good development. However, one of the results is that the patients who do remain on

normal clinical beds require, on average, a much higher level of care then was the case when extended postoperative stays were the norm. In order to achieve the added efficiency which could be obtained by a further shift towards day and short stay several pre requisites exist:

- Firstly, coordinated and effective preoperative screening and assessment is essential to allow patient selection. This should preferably be carried out by anaesthesia and surgical specialities together.
- Secondly, transmural health care needs to be developed to cope with the fact that patients are returning earlier to a home situation. General practitioners and other first line health care practitioners need to be prepared for this responsibility.
- Thirdly, the ever widening gap between standard care wards and intensive care, both in terms of staffing and monitoring, needs to be addressed. This might mean improving the facilities on general wards or alternatively it could mean the opening of medium care units, designed primarily to act as step down units for patients following an intensive care admission. Both options have advantages and disadvantages and careful thought and preferably study needs to be carried out before final decisions are made on this point.
- Lastly, when asked recently to contribute to a five to ten year planning exercise I estimated that the hospital would require 50 high care / intensive care beds. This may seem extreme but it seems clear that a significant increase in the current capacity will be required over that time period. Intensive care now deals with older, sicker patients with more advanced and complex disease, and in whom increasingly complex surgical procedures are carried out.

Extending intensive care facilities has significant financial implications for a health care institution. The account of the polio

academic described how the simple introduction of blood gas analysis produced a simple change in the clinical management of polio victims and safed many lives. Since then, the technology associated with intensive care has transformed clinical practice but only now are we beginning to subject this technology to assessment on the basis of evidence based medicine. It is clear that not all technological advances are accompanied by better outcomes for patients. Indeed, extensive organ system support can actually make things worse by deferring but not preventing death, with the result that it can cost twice as much to produce a non-survivor as a survivor from critical illness. Intensive care is certainly expensive. In the USA 20 to 30% of acute hospital costs are devoted to intensive care treatment and this represents one percent of the total gross domestic product. In Western Europe this figure is less but still substantial. The extemely high cost of intensive care coupled with the apparently limitless number of new technologies available lead me to make the following conclusions:

- Firstly, intensivists need to become involved in technology assessment and be prepared to carry out efficiency and cost effectiveness studies where appropriated.
- Secondly, we must be prepared to respond to changing patterns in healthcare. The ever increasing gap between standard care and intensive care has already been referred to. It seems inappropriate to keep a patient on an intensive care bed for many days simply because endotracheal suction may not be carried out on a standard ward. As already pointed out this can be solved either by the provision of medium care facilities or the upgrading of care on standard wards. Fortunately, instruments exist to allow measurement of the level of care required by patients and in the near future we should apply

these instruments to decide whether the provision of medium care beds is appropriate and/or cost effective.

6. Intensive care research

I have been actively involved in intensive care research since the beginning of my work with the shock team in Glasgow. At the time of my move to Maastricht the intensive care here already had well developed research programmes particularly in the fields of sepsis and infectious diseases. The quality and quantity of scientific output can already be considered reasonable. The intensive care team should, through collaboration, seek to achieve a recognisable identity for the research carried out and further inbedding of the research within the institutes of NUTRIM and CARIM would be appropriate. Because of the risks of financial constraint on intensive care expansion, as mentioned above, intensivists must be actively involved in technology assessment and cost effectiveness studies.

7. Intensive care training

Scientific research is of undisputed importance in the portfolio of any academic specialist. Although it is less fashionable, I believe that a clinical professor should devote at least as much time and attention to education and training as they do to research. Most of the practitioners currently practising intensive care were self thought. In the majority of European countries training schemes now exist for intensive care. However, the requirements for training very widely and most countries are unable to provide a curriculum for the simple reason that it does not exist. The basis

for setting standards and achieving harmonisation of intensive care training in Europe has been facilitated by the establishment of MJCICM but the tools to achieve these goals still need to be developed. I would like to illustrate the possibility for the future by discussing briefly two intensive care training courses, one already in existence and the other currently in development.

FCCS (Fundamentals of Critical Care Support)

FCCS is a course developed by the American Society of Critical Care Medicine (SCCM). It is a two day course, designed as an introduction to intensive care, and intended for residents with no previous experience in intensive care medicine. Candidates for the course are sent a well written textbook some weeks in advance and they are also asked to complete a multiple choice examination at home. The course itself consists of a mixture of short lectures interspersed with skill stations where practical skills are demonstrated and also performed by the candidates. At the end of the second day a final examination is taken. As chairman of the ESICM Task Force on Education I was involved in introducing FCCS to Europe. ESICM chose to organize instructor courses linked to the annual congress of the society. As of last year we had sufficient instructors in The Netherlands to organise our own course and the first Dutch FCCS course took place in December 1999. The franchise licence to run FCCS courses in The Netherlands has now been obtained in the name of the IVN (Intensivisten Vereniging Nederland). With the instructor pool which we now have in The Netherlands the plan is to rapidly expand the number of courses offered. The level of interest is high. The ultimate aim would be to offer the course to all residents in training prior to their undertaking attachments on the intensive care units.

PACT (Patients Centered Acute Care Training)

PACT is a new venture, a distance learning course currently being produced by the Task Force on Education of ESICM. Giving the current vacuum in the market the aim is to provide a multimedia course which will find international acceptance. The aim is to provide not only a mullti-disciplinary course but one that is also multi professional meaning that the course is aimed at intensive care nurses, and other health care professionals, as well intensivists or intensivsits in training. The educational design was performed by the centre for medical education in Dundee University, a group with a long and successful tradition in the production of teaching courses. The work of production began in March 1999 and the first module is already completed with two others due to be completed in the coming weeks. The course will be simultaneously produced in three different forms, namely paper, CD and Internet. The two electronic versions in particular are extremely exciting offering many potential advantages such as automatic cross linking with other parts of the course, hyper links to other educational sites, enhancement of diagrams, inclusion of instructional videos and audio information, direct links to standard textbooks on intensive care allowing easy referencing and avoiding the need to provide extensive text within the module itself. The production will be completed within 2 to 2½ years and ultimately the course will comprise 43 modules, clustered into 4 sections. The first section will deal with a problem orientated approach to clinical problems such as hypotension and oliguria. The second section deals with organ specific problems such as pancreatitis or traumatic brain injury. The third section covers skills and techniques such as airway management or sedation and analgesia. The last section deals with professionalism, and is unusual in such a course, covering topics such as communication

skills, organisation and management and ethics and end of life decision making.

Development of the course would not have been possible were it not for the initial investment from founder sponsors, namely - Abbott, Baxter, Datex-Ohmeda, Hamilton, Knoll, Eli-Lilly and Novartis. Following the successful launch of a pilot module on traumatic brain injury during the annual congress in October 1999 there has been a huge level of interest in the course with already in excess of 100 subscribers each of whom have paid 800 Euro's, despite the fact that the first module is only now ready to be released. Discussions are well advanced with national societies in Europe and also with various societies in Australasia and steps are being taken to ensure that accreditation is available for CME in America. Already several national societies have indicated their willingness to purchase multiple copies for distribution to trainees and other societies have indicated their wish to translate the course into other languages.

The existing European Diploma of Intensive Care (EDIC) is an examination developed by ESICM. It will be redesigned using the content of the PACT course as a syllabus and offered with PACT to national societies allowing, in the future, the possibility of joint accreditation of trainees by the national and European societies together. Through the work being done by MJCICM it is hoped that a course such as PACT can help to achieve harmonisation of training standards in Europe and beyond.

In Europe the majority of practising intensivists come from an anaesthetic background. In the United Kingdom for instance anaesthetists comprise 80% of all intensivists. A large number of prominent intensivists have also come from an internal medicine background. As a surgeon I remain disappointed by the relative lack of involvement from surgical disciplines. Of course it is understandable that surgeons wish to primarily work in the

operating theatre but on the other hand in excess of 60% of all intensive care admissions come from surgical specialties. In The Netherlands the GIC has already accepted that surgeons undertaking further training in intensive care can continue to operate one day per week. In addition the trainees are jointly responsible for all re-operations occurring from the intensive care unit. Traumatology appears to be one area of interest within surgery which links well to intensive care. Plans are currently being prepared for submission to the concillium of the Dutch society of surgery proposing a combined further training in traumatology and intensive care giving dual accreditation. The period of post specialist training can be limited by incorporating a portion of training into a differentiation year within the training for the primary speciality. With the recent antegrade training of several surgical intensivists I hope that the presence of role models together with an attractive training programme will encourage more surgeons into intensive care practice.

Specialist practice, particular within academic hospitals, is increasingly being sub-divided into sub specialities. This is of course good for the focussing of expertise but does mean that the 'generalist' of former years no longer exists. The skill to quickly assess a sick patient and initiate treatment, irrespective of the underline cause, remains important, particularly in accident departments and on the intensive care. Compulsory attachments to intensive care units during specialist training, and exposure to courses such as FCCS and PACT, should help maintain the 'generalist' approach and lead to improved standards of practice both in the ICU and throughout acute hospital medicine.

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9. Dankwoord

Aan het einde gekomen van deze rede rest mij de plezierige taak hen te danken die eraan hebben bijgedragen dat ik u vandaag mocht toespreken.

Meneer de Rector Magnificus, Leden van het Bestuur van de Universiteit Maastricht, Meneer de Dekaan en Leden van het Faculteitsbestuur, de Faculteitsraad, de Raad van Bestuur van het academisch ziekenhuis Maastricht, en het Bestuur van de Stichting Annadal,

U wil ik danken voor mijn benoeming als bijzonder hoogleraar intensive care.

I would like to say a very special thank you to Professor Iain Ledingham who is present today. He was not only responsible for my entry into intensive care but functioned throughout many years as my mentor and trainer and later as a good friend. More recently he was responsible for providing me with the idea of developing PACT as a multimedia course for intensive care.

I would also like to thank my other guests today, Professor Hilmar Burchardi and Dr. Julian Bion, both for their friendship and for their tremendous support within the Task Force on Education of ESICM.

Hooggeleerde Kootstra, Beste Gauke, bedankt voor de uitnodiging om in 1993 naar Maastricht te komen en lid te worden van een heel vriendelijke en hechte groep van chirurgen. Jij was slim genoeg om gedurende twee dagen mij alleen de mooiste

plekken in Limburg te laten zien, zelfs een paar heuvels, zodat het gevoel van heimwee niet zo sterk zou zijn.

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Een speciaal dankwoord voor de intensive care verpleegkundigen omdat intensive care een multiprofessioneel gebeuren is en mijn taak onmogelijk zou zijn zonder de hoog kwalitatieve zorg die jullie leveren.

Ik heb een enorme waardering voor mijn secretaressen, Miranda, Josette en Annemarie. De organisatie van vandaag was bijvoorbeeld nooit mogelijk geweest zonder de enorme inzet van met name Miranda.

Nel van de Berg en Jantie de Roos wil ik ook bedanken voor hun steun bij het organiseren van het symposium, de oratie en het feest vandaag.

Helaas kunnen mijn ouders dit niet meemaken. Mijn moeder is pas kort geleden overleden. Ik vond het wel heel fijn dat ik haar kort van tevoren mocht vertellen dat ik hoogleraar zou worden. Opvallend was haar respons: "What a shame that you will be spending all your time teaching instead of looking after patients - still if that is what you want then I am very proud of you".

Last but not least my heart felt thanks to Claire and Ashley, loving wife and daughter. We have been through stressful times together not helped by long hours in the hospital and certainly worsened by the many meetings and congresses in what should have been free time. Nevertheless, the opportunity to come home to love and smiling faces has always been a great source of strength to me.

Mijnheer de Rector,
Dames en Heren,

Ik heb gezegd.